

**APPARATUS AND METHOD FOR PROCESSOR POWER
MEASUREMENT IN A DIGITAL SIGNAL PROCESSOR
USING TRACE DATA AND SIMULATION TECHNIQUES**

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Abstract of the Invention

10 In order to measure the power consumed by a central processing unit during
execution of a software program, the trace components are used to determine the input
signals and the output signals and interrupt conditions for each clock cycle. The input
signals and the output signals can be applied to a simulation model of the central
processing system to determine the state of the central processing unit for each clock
cycle. The simulation model is also used to determine the power dissipated for each
15 state. Combining the knowledge of the progression of states of the central processing
unit with the power consumed by the central processing unit for each state, the
consumption of power by the central processing unit can be determined as a function of
execution of the program. By comparing the power consumed with the portion of the
program being executed, the program can be adjusted to reduce the power required
20 during the execution of the program.